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THE MAMMALS OF SHAKSPEARE.

By HENRY REEKS, F.L.S., F.Z.S.

OWING chiefly to a perusal of the interesting articles on "The Birds of Shakspeare," which appeared many years ago in 'The Zoologist,' and which have since been reprinted in a separate form with numerous additions,* I have been induced to go carefully through the voluminous writings of that "myriad-minded man," as Coleridge aptly terms the Bard of Avon, in search of what I felt sure of finding, *viz.*, numerous references to animals—true *feræ naturæ*.

Domestic animals are repeatedly alluded to by Shakspeare; but in the following pages I have not thought it necessary to make any extracts relating to them.

Many animals are mentioned the species of which it is impossible to identify; and a few—especially among the numerous and widely-spread families of Monkeys—cannot be referred with certainty even to a particular genus.

I have not the benefit of libraries at hand for reference, still I trust the following remarks, from purely Shakspearian associations, may prove interesting to at least some of the readers of 'The Zoologist.'

It is only fair to state that Mr. Harting, in the "Introduction" to his more extended work on the 'Ornithology of Shakspeare,' mentions many of the animals—in fact, nearly all the British species—to which I am able to refer. I am also indebted to Mr. Harting for many valuable hints on local provincial names, &c.

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* 'The Ornithology of Shakespeare: Critically Examined, Explained and Illustrated.' By J. E. Harting. London: Van Voorst. 1871.

The words attributed to Caius Lucius in praise of noble Cæsar are truly applicable, although in a different sense, to Shakspeare—

> " Whose remembrance yet
> Lives in men's eyes, and will to ears and tongues
> Be theme and hearing ever."
>
> *Cymbeline.* Act iii., Scene 1.

THE MONKEY, *Semnopithecus* or *Colobus*.

Although Shakspeare several times alludes to Monkeys, no particular species is sufficiently characterized for identification; they may, however, doubtless be referred to the Old World family *Semnopithecidæ,* which comprises the long-tailed Monkeys without cheek-pouches. The two genera of this family have a wide geographical distribution, being found in one sub-region of the Palæarctic; two ditto of the Ethiopian; and in all the sub-regions of the Oriental, as defined by Mr. A. R. Wallace.

> " On meddling *Monkey,* or on busy Ape."
>
> *Midsummer Night's Dream.* Act ii., Scene 2.

Monkeys were even in those days kept as pets by ladies; vide *Merchant of Venice,* Act iii., Scene 1—

> TUBAL. " One of them showed me a ring, that he had of your daughter for a *Monkey.*"

Shylock had a turquoise which he had of Leah when he was a bachelor, and would not have given " for a wilderness of Monkeys." *Merchant of Venice,* Act iii., Scene 1.

In *As You Like It,* Act iv., Scene 1, where Orlando wishes to marry Rosalind, and promises to be constant to her " for ever and a day," Rosalind replies:—

> " Say a day, without the ever. No, no, Orlando; men are April when they woo, December when they wed: maids are May when they are maids, but the sky changes when they are wives. I will be more jealous of thee than a Barbary cock-pigeon over his hen; more clamorous than a parrot against rain; more new-fangled than an Ape: more giddy in my desires than a *Monkey.*"

* * * "The strain of man's bred out
Into Baboon and *Monkey.*"
Timon of Athens. Act i., Scene 1.

In *King Lear*, Act ii., Scene 4, the Fool remarks:—

"Ha, ha! he wears cruel garters. Horses are tied by the head, dogs and bears by the neck, *Monkeys* by the loins, and men by the legs," &c.

In *Macbeth*, Act iv., Scene 2, Lady Macduff applies the word monkey as an epithet to her precocious son:—

"Now God help thee, poor *Monkey!*
But how wilt thou do for a father?"

Again, in *Othello*, Act iv., Scene 1, Cassio says:—

"This is the *Monkey's* own giving out: she is persuaded I will marry her, out of her own love and flattery, not out of my promise."

THE APE.

With regard to *Apes* and *Baboons*, it is possible that some of the former mentioned by Shakspeare belong to the family *Simiidæ*; but as in *Hamlet*, Act iv., Scene 1, he distinctly refers to an *Ape* with a cheek-pouch, it will be sufficient for our purpose to class the *Apes* with the *Baboons* in the family *Cynopithecidæ*.

"Sometime like *Apes*, that moe and chatter at me."
The Tempest. Act ii., Scene 2.

"And all be turned to * * * * *Apes*,
With foreheads villainous low."
Id. Act iv., Scene 1.

"His glassy essence,—like an angry *Ape*."
Measure for Measure. Act ii., Scene 2.

"The fox, the *Ape*, and the humble bee
Were still at odds, being but three."
Love's Labour Lost. Act iii., Scene 1.

See also *Love's Labour Lost*, Act iv., Scene 2, and Act v., Scene 2.

JACQUES. "Well, then, if ever I thank any man, I'll thank you; but that they call compliment is like the encounter of two *dog-apes*," &c.

As You Like It. Act ii., Scene 5.
Id. Act iii., Scene 3.
Id. Act iv., Scene 1.

"What! will you not suffer me? Nay, now I see
She is your treasure, she must have a husband;
I must dance barefoot on her wedding-day,
And for your love to her, lead *Apes* in hell."

Taming of the Shrew. Act ii., Scene 1.

"I know this man well: he hath been since an *Ape*-bearer."

The Winter's Tale. Act iv., Scene 2.
Id. Act v., Scene 2.

"Out, you mad-headed *Ape!*
A weasel hath not such a deal of spleen,
As you are tossed with."

King Henry IV. Part I. Act ii., Scene 3.

"And the boy that I gave Falstaff: he had him from me Christian; and look, if the fat villain hath not transformed him *Ape*."

Henry IV. Part II. Act ii., Scene 2.

The *Ape* is mentioned upwards of thirty times in the plays of Shakspeare; but it is unnecessary to give more than one other reference, *viz.*, that in which the cheek-pouch is referred to.

HAMLET. "Ay, sir; that soaks up the King's countenance, his rewards, his authorities. But such officers do the King best service in the end: he keeps them like an *Ape* doth nuts, in the corner of his jaw; first mouthed to be last swallowed," &c.

Hamlet. Act iv., Scene 2.

THE BABOON, *Cynocephalus* sp.?

FALSTAFF. "Not a penny. I have been content, sir, you should lay my countenance to pawn: I have grated upon my good friends for three reprieves for you and your coach-fellow, Nym; or else you had looked through the grate, like a gemini of *Baboons*."

Merry Wives of Windsor. Act ii., Scene 2.

FALSTAFF. "He a good wit! hang him, *Baboon!* his wit is as thick as Tewksbury mustard: there is no more conceit in him than is in a mallet."

Henry IV. Part II. Act ii., Scene 4.
Timon of Athens. Act i., Scene 1.

Again in *Macbeth*, Act iv., Scene 1—

> 2ND WITCH. "Cool it with a *Baboon's* blood;
> Then the charm is firm and good."

Othello. Act i., Scene 3.
Pericles. Act. iv., Scene 6.

THE MARMOSET, *Hapale*, or *Midas* sp.?

The thirty-two known species of Marmosets have, comparatively speaking, a very limited geographical range, being confined to one sub-region (the Brazilian) of Mr. Wallace's Neotropical Region. The following reference to the Marmoset by Shakspeare must, therefore, be taken in the light of a poet's licence:—

> CALIBAN. "I pr'ythee, let me bring thee where crabs grow,
> And I with my long nails will dig thee pig-nuts;
> Show thee a jay's nest, and instruct thee how
> To snare the nimble *Marmoset*," &c.

The Tempest. Act ii., Scene 2.

BATS.

It will perhaps be sufficient to class the *Bats* of Shakspeare in the large and universally distributed family *Vespertilionidæ*.

THE COMMON BAT, *Vespertilio pipestrellus*.

> "On the *Bat's* back I do fly
> After summer, merrily," &c.

The Tempest. Act v., Scene 1.

Mr. Harting remarks, in his Introduction to the 'Ornithology of Shakspeare' (page 13, foot-note), "In the Midland Counties the Bat is often called 'leathern-wings.'" It is also occasionally called so in Hampshire, but more frequently *rear-mouse*.

> "Some, war with *rear-mice* for their leathern wings
> To make my small elves coats," &c.

Midsummer Night's Dream. Act ii., Scene 3.
Id. Act iii., Scene 2.

Macbeth, while regretting that Banquo and his son Fleance were still alive and may find means to revenge the death of Duncan, thus addresses Lady Macbeth :—

> "There's comfort yet; they are assailable;
> Then be thou jocund; ere the *Bat* hath flown
> His cloister'd flight: ere, to black Hecate's summons,
> The shard-borne beetle, with his drowsy hums,
> Hath rung night's yawning peal, there shall be done
> A deed of dreadful note."
>
> *Macbeth.* Act iii., Scene 2.

As the witches in *Macbeth* made use of "Baboon's blood" when preparing a charm, so they also availed themselves of—

> "Wool of *Bat*, and tongue of dog."
>
> *Id.* Act iv., Scene 1.

Hamlet, while railing at his mother for marrying the murderer of his father, says :—

> "'Twere good you let him know;
> For who, that's but a queen, fair, sober, wise,
> Would from a paddock, from a *Bat*, a gib,
> Such dear concernings hide?"
>
> *Hamlet.* Act iii., Scene 4.

(To be continued.)

ORNITHOLOGICAL NOTES FROM THE LAKE DISTRICT.

By W. A. Durnford.

Since my last communication I have noted but few observations of interest. Whether from the unusual wetness of the season—fifty-four inches of rain having fallen here in 1877, against an average of thirty-six inches for the last four years—or from the absence of any continued frost, the visits of very few rare birds have been recorded. It must not be inferred from this that no uncommon varieties have been observed in the neighbourhood, for many may have been seen and even procured without any record having been made of the fact. Indeed, I am inclined to think that to one recorded instance of the occurrence of a rare species a dozen may be really understood to have appeared in the same district.

Towards the end of April, 1877, I paid several visits to the low-lying moorland in the vicinity of Broughton-in-Furness, and found that ten or twelve pairs of Curlews had returned to their breeding haunts, though they did not appear to have actually commenced nesting. Every effort to discover the eggs of this species, repeated throughout the following month, proved unavailing, and the nearest approach to the desired discovery was a nest from which the young had evidently just been hatched, which I came across on May 26th, whilst beating up a small piece of marshy ground situated in a deep hollow among the fells. In the same locality the number of Carrion Crows' nests was very noticeable. Almost every one of the stunted thorn-bushes, which are here sparsely scattered about on the hills, seemed to be occupied by one of these nests, placed at a height of about ten feet from the ground. Most of them were evidently old ones, and it seemed as if the Crows had occupied the locality undisturbed for many generations. One nest contained four young ones on May 19th. Some Common Sandpipers, which I met with on the edge of a small tarn during an excursion amongst the fells, appeared to be breeding, but a search after their eggs proved unavailing.

I am glad to say that the Buzzard is still plentiful on the Cumberland hills. On May 5th an energetic friend, who spends most of his spare time amongst the hills, brought me three eggs which he had obtained with great difficulty from a crag near Black Apron. His efforts to trap the old birds had failed, as had a previous attempt made by a keeper in another locality.* I learnt from this same keeper that the Dotterel is still to be found on the mountains about Wastwater, but hitherto all his attempts to discover their eggs have failed. On one occasion he could have killed three or four at a shot on the mountain known as "The Screes," but resisted doing so for the sake of the eggs he was hunting for. At the foot of this lake I was shown a fir tree from which the nest of a Buzzard was taken last spring. The situation was considered by the natives to be a most unusual one.

The most interesting specimen which came under my immediate notice during the year was an Osprey, shot in a wood close to this town on May 11th. Its dimensions, as taken by myself, were:—spread of wings, five feet six inches; total length, two feet one inch; and the weight was four pounds and a quarter.

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* If the unfortunate birds are trapped as well as their eggs taken, our correspondent will very soon be unable to rejoice that the Buzzard is plentiful. We deprecate this wholesale destruction of both old and young. If a "sitting" of eggs is taken, not much harm is done, for the birds in all probability will lay again; but if at the same time the birds are trapped or shot, what then?—Ed.

My remaining notes for the month of May show that on the 2nd a flock of several hundred wild geese were seen flying north across the River Duddon about 8 A. M. On the 5th a local gunner obtained a number of Turnstones in full plumage—a fact which affords a strong argument for those who would place all sea and shore birds under the protection of an Act of Parliament, inasmuch as to omit a bird, such as the Turnstone, affords a loophole to any one who wishes to elude the Acts of Parliament at present in force, and enables them to shoot almost *ad libitum* throughout the close season. On the 12th, although young Black-headed Gulls were beginning to appear on Walney Island, the Herring Gulls on the rocky ledges of St. Bees Head showed no signs of hatching.

The Terns on Walney began to lay as soon as the Gulls had hatched, but their eggs were not plentiful before the commencement of June. On the 21st of the latter month I found in the Gullery a young Sandwich Tern almost ready to fly, as well as three freshly-laid Oystercatcher's eggs, probably a second brood. On June 2nd a friend dug out a nest containing Shieldrake's eggs from amongst some sand-hills on the Cumberland coast, but an attempt to hatch them out under a hen unfortunately failed. Towards the end of July numerous broods of the young of this species might be seen amongst the sand-hills, ready at the first alarm to take refuge in a rabbit-hole.

Two Woodcock's eggs were brought to me on the 30th June, which had been taken in the early part of the season in a wood close to this town; and on the 5th I put up a pair of Long-eared Owls in the same wood, and was assured by a friend that he had taken their eggs there in previous years.

At the beginning of July I chanced to be on the railway which skirts the estuary of the Duddon, when a Kestrel rose from the embankment, within a few yards of me, with a large object in its claws. By shouting and waving the fishing-rod I had in my hand I induced it to drop its prey, which on examination proved to be a full-fledged young Cuckoo, dead though still warm. Notwithstanding its size, the hawk seemed to experience little difficulty in rising with its burden.

Whilst Partridge shooting in Hampshire, at the beginning of September, I killed an old Quail, which rose out of some barley, and a few minutes later a boy who was walking with us nearly trod upon a brood of young birds, not more than a week old. I cannot ascertain that any others of this species have been met with in this part of Lancashire, and the same remark might apply to the Red-legged Partridge, the nearest locality where the latter has occurred being, I believe, the East Riding of Yorkshire.

The Short-eared Owl has been as scarce this winter on Walney Island as it was numerous last year. Where seven or eight might have been seen in 1876 it is now extremely difficult to find a single specimen. Fortunately I have reason to think that the few that have returned have been better treated than they were last autumn, when large numbers were slaughtered for making hand-screens. I noticed one of these Owls near Lowestoft, in Suffolk, on the 11th September. On Walney I have never seen one before the middle of October.

The first of the migratory ducks appeared last autumn on the reservoirs close to the town on October 13th; but since that date I believe no more have been seen there. I fear that the rapid growth of the town and the erection of some new iron-works in the locality must account for their absence, though possibly the extreme mildness of the weather may be a sufficient cause. On the same day several Swallows were to be seen on the wing at Furness Abbey, this being the latest date at which I have heard of their being observed in this locality. On November 10th a friend who was out with me on Walney Island killed a Purple Sandpiper, and on the same occasion we saw two others of this species—the first I have hitherto noticed in the district. At the present time (February) Knots are extremely plentiful on the island; and, notwithstanding the increase in the number of guns, all the ordinary sorts of waders seem to be as plentiful as ever.

The dearth of Landrails during the past year has been noticeable everywhere; several Water-rails were, however, killed in January near Wastwater, in Cumberland. The latter are looked upon as somewhat rare visitors in this locality.

THE LAND AND FRESHWATER MOLLUSCA OF SUSSEX.

By the Editor.

(Continued from p. 94.)

Bulimus obscurus. The Dull Twist Shell.—Common during the summer and autumn months on the trunks of trees, especially the beech, and at other seasons under stones and dead wood, as well as in moss on old walls, but when very young it often escapes notice as a shell. The Rev. Revett Sheppard, in a paper in the 'Transactions of the Linnean Society,' says:—"These snails, particularly in their young state, show great sagacity and ingenuity by covering themselves with a coat adapted to the different situations in which they are found, and when so covered it is almost impossible for any other than a conchological eye to discover them. If its abode be on the trunk of a tree covered with lichen, then is the epidermis so constructed as to cause the shell to resemble a little knot on the bark of the tree covered with such substance. If on a smooth tree, from whose bark issue small sessile buds, as is frequently the case, it will pass off very well for one of them, and on a dry bank or the lower part of the body of a tree splashed with mud, its appearance will be that of a misshapen pointed piece of dirt." When the shell is fully developed, this disguise is less perfect, although the coating of extraneous matter is still conspicuous.

It is somewhat curious that none of the Sussex lists include the allied *Bulimus acutus*, which, according to Mr. Gwyn Jeffreys, is to be found on downs and sand-hills on the sea-coast from Sutherlandshire to the Channel Islands, as well as throughout Wales and Ireland. There can be little doubt that it occurs in Sussex, and will be found if looked for in the situations indicated.

Bulimus montanus, or *lackhamensis*, as it is styled by Messrs. Forbes and Hanley, differs from *Bulimus obscurus* chiefly in size, being at least four times larger. I have specimens procured at Selborne, Hants, and should therefore expect to hear of its occurrence in Sussex, where it has possibly been overlooked.

Pupa secale vel *juniperi.* The Common Chrysalis Shell.—Plentiful on the South Downs wherever juniper-bushes occur. I have specimens from Newtimber. In the "Home Pit," near Lewes, it is common under loose chalk-stones.—U. It is found also in the neighbourhood of Chichester (J), Brighton (M), and Eastbourne (G). The young have their shells encrusted with earth or the spores of lichens and mosses, in the same way as *Bulimus obscurus;* and even adult specimens have occasionally a similar covering. From this circumstance Mr. Gwyn Jeffreys is of opinion that the coat is not made purposely by the animal, as suggested by the Rev. Revett Sheppard, but is involuntarily caused by the accidental adhesion of extraneous matter to the outer surface of the shell, by means of the slime, or a glutinous film which exudes from or invests the epidermis. The species of the genus *Pupa* are all of small size and gregarious habits. Besides their variation in size and colour, they may be distinguished by the curious processes called "teeth," which fence in and contract the mouth of the shell.

Pupa umbilicata, vel *cylindracea*. The Umbilicated Chrysalis Shell.—Common on the downs under stones, and on old walls under grass-roots and moss. Found also among dead leaves and beneath the bark of trees. Very common in the neighbourhood of Lewes on old walls and under chalk-stones.

Pupa marginata, vel *muscorum*. The Margined Chrysalis Shell.—Found on similar situations to the last-named and on tiled roofs of old buildings.—W.

Vertigo antivertigo. The Marsh Whorl Shell.—Rare or local. Under stones in the level near Newtimber.—B. Near Eastbourne.—G. By the side of a ditch in the level near Lewes.—U. Mr. Unwin includes it in his list under the name *palustris*, under which name it is also included amongst the shells found in the vicinity of Brighton.—M. The eight or nine species which compose the genus *Vertigo* are closely allied to *Pupa*, of which they are but miniature forms, and of similar habits. The chief difference is to be found rather in the animal than in the shell, the inhabitant of which has two tentacles instead of four, as in *Pupa*.

Vertigo pygmæa. The Dwarf Whorl Shell.—Rare. Under old bark fallen from larch rails at Cowfold, near Horsham.—B. At Uppark.—W. At the roots of moss and grass on the eastern bank of Ashcombe Plantation, Lewes.—U. In the neighbourhood of Brighton.—M.

Vertigo edentula. The Toothless Whorl Shell. — Occurs sparingly at Cowfold amongst dead leaves, and at Lindfield on stems of *Scolopendrium vulgare*.—B. On Chailey Common, near Lewes, on the under side of the leaves of *Filix mas*.—U.

Balia perversa, vel *fragilis*. The Fragile Moss Shell.—Not uncommon under lichens and the bark of thorns on the Downs.—H. On old ash trees at Offham, near Lewes, and on the garden wall of the Rectory at East Blatchington, near Seaford.—B. Common near Brighton (M) and at Eastbourne (G). In the neighbourhood of Uppark it is one of the commonest shells, and may be collected in great numbers on the mossy bark of old beech trees.—W and H.

Clausilia laminata. The Laminated Close Shell.—The shells of the genus *Clausilia* are worth examining carefully on account of a remarkable peculiarity in structure—namely, a lid to the mouth of the shell, which closes, so to say, with a spring. If the outer part of the last whorl be broken off, there will be found a spoon-shaped calcareous plate or valve, attached to the column of the spire by an elastic filament. When the animal protrudes from its shell, this plate is thrust aside, and when it withdraws it closes the door, as it were, behind it. This curious structure, and also the plaits of the mouth, which are intimately connected with it, are not formed until the animal has nearly reached maturity.* Four species of the genus are found in Sussex. *Clausilia laminata*, about three-quarters of an inch in length, is common under stones, dead leaves, &c., and is fond of ascending trees in wet weather. Mr. Unwin includes it in his 'List of Lewes Shells' under the specific name *bidens*.

Clausilia biplicata. The Folded Closed Shell.—About half an inch in length. Abundant on old trees and walls, and under dead wood in shady places.

Clausilia nigricans, vel *rugosa*, vel *perversa*. The Dark Close Shell.—Smaller than the last named, and the smallest of the four species included in this catalogue. Equally common with the last-mentioned on walls, fences and trees, amongst moss and under stones in the same localities. Abundant in the neighbourhood of Lewes, where Mr. Unwin has frequently met with the variety *C. parvula*.

Clausilia Rolphii. Rolph's Close Shell.—Larger than *nigricans* and a little smaller than *biplicata*. Sparingly distributed amongst moss and under dead wood, especially on the chalk. Found at

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* *C. f.* J. E. Gray, 'Zoological Journal,' i., p. 212.

Newtimber and between Brighton and Lewes. The only locality *off the chalk* in which I have found it is Flexham Park, near Petworth.—B. Not uncommon in the vicinity of Uppark.—W. Coghurst Wood, Hastings (H), and in the neighbourhood of Brighton, where, however, it is considered rare (M). It is generally found in damp situations in woods amongst dead leaves and moss, and under nettles and *Mercurialis perennis*, as well as on the trunks of trees.

Azeca tridens. The Glossy Trident Shell.—May be regarded as a link between *Bulimus* and *Clausilia.* Very local; amongst moss on the sides of bushy valleys of the South Downs, and occasionally in woods near the South Downs. Abundant in a valley near Dalegate, in the parish of Newtimber.—B. Found occasionally in the neighbourhood of Uppark in company with *Zua lubrica.*—W.

Zua lubrica. The Common Varnished Shell. — Abundant under stones and leaves; at the bottom of walls and posts where sheltered by herbage; and amongst the roots of grass in meadows.

Mr. Gwyn Jeffreys places this and the last-named species in the same genus, *Cochlicopa*, notwithstanding their very different structure. *Azeca tridens* has the mouth furnished with teeth and folds, the outer lip notched and the inner lip thickened. *Zua lubrica* possesses exactly opposite characters.

Achatina acicula. The Needle Agate Shell.—Under chalk on the South Downs; often buried some inches below the surface, and may be mistaken at first sight for a little white maggot, the shell being long, thin and cylindrical, and rather smooth. It is not uncommon on the hills around Hollingbury Camp, near Brighton, and on Clayton Hill, one of the South Downs range.—B. Also at the foot of East Harting Down.—W. It is probably local rather than rare, and seems to be confined to localities where the soil is calcareous.

Fam. CARYCHIIDÆ.

Carychium minimum. The Little Sedge Shell.—May be looked for at the roots of grass and other plants, and amongst moss in damp situations. In winter it may be discovered in the hollow stems of the larger umbelliferous marsh plants. From its very minute size, being one of the smallest of our land shells, a careful search for it is necessary. In appearance the shell is not very unlike *Pupa*, but more transparent, with fewer whorls and with the spire less blunted. Mr. Unwin notes it as rare in the neighbourhood of Lewes. He has found it at the roots of moss (*Hypnum lutescens* and *cuspidatum*), on a moist bank sloping towards the "Cut," near Landport.

Mr. Borrer would include amongst the Land and Freshwater Mollusca of Sussex, *Conovulus denticulatus* and *C. bidentatus*, which he notes as occurring in brackish marshes under stones and amongst roots, and abundant around Newhaven and near Shoreham Bridge. Mr. Gwyn Jeffreys, on the other hand, considers that they should be "excluded from the category of land shells, and placed with those having a marine habitat." The late Dr. Gray, in his edition of Turton's 'Manual of the Land and Freshwater Shells of the British Islands,' places these two species in the same family (*Auriculidæ*) with *Carychium minimum*, and remarks:—"These Mollusca appear by habit and character to be exactly intermediate between the land and freshwater univalve Mollusca. They have the sessile eyes of the Pond-snails, placed behind instead of in front of the tentacles of the land-snails; but the tentacles are not retractile under the skin of the neck. In the same way the *Carychia* and *Acmea* are terrestrial, living in damp moss; the *Conovuli* live in the mud at the mouths of rivers, or in the sea—they seldom leave salt, or at least brackish water."

Fam. CYCLOSTOMATIDÆ.

Cyclostoma elegans. The Elegant Circle Shell.—In hedges and under stones on the chalk. Abundant in the copses under the South Downs. The mouth of this shell is closed with a very solid operculum, covered on both sides with a thick epidermis, a double fringe of which completely encircles it, and causes it to appear laminated. The animal itself is of very shy and retiring habits, and in dry weather buries itself in the earth, where it often falls a prey to carnivorous beetles, notwithstanding its closely-fitting operculum.

Acme lineata. The Striated Pointed Shell.—Amongst decayed leaves in open drains, and under stones in woods. Included in the lists from Brighton and Lewes (where Mr. Unwin marks it as rare), under the name *Segmentina lineata.*

(To be continued.)

OCCASIONAL NOTES.

Occurrence of the Beech Marten in Cornwall.—The Marten has become one of the rarest of our wild animals, and is regarded as almost extinct; but every now and then one is met with, and when a specimen is obtained it is always regarded as an interesting fact, not only from its rarity as a British quadruped, but also from its striking size and graceful shape, far surpassing in this respect the other members of the *Mustelidæ*, or Weasel tribe. Early in March a full-grown female Marten was captured in the immediate neighbourhood of Delabole Quarries in the north part of this county. Length twenty-three inches; length of tail nine inches and a half. I should imagine from these dimensions that it must be very inferior in size to the male, if the dimensions of authors can be depended upon, which give twenty-seven inches and a half. Its large bushy tail adds to its beauty, and at a distance the Marten resembles a gigantic Squirrel. It is very arboreal in its general habits, and is usually seen running over the long boughs of trees, apparently in pursuit of birds, squirrels, &c., upon which it feeds. It does not always exhibit agility or gracefulness in its movements; but it can do so to a great degree when called upon. It has been observed creeping stealthily like a cat on the branches of trees, apparently in pursuit of its prey. Its actions have been noticed and watched by sportsmen when hunted with fox-hounds. They appear to lose their scent, from their eagerness in recognizing it. About thirty-five years since a pack of fox-hounds, in drawing Bodethiel Coombe, in the Glynn Valley, near Bodmin, found an animal, which at a distance appeared too large for a Squirrel and too small for a Fox. When moved it fled to the tops of the brushwood and furze, and then took a course through the Coombe at a good pace to Hallow Marsh Wood, when in leaping from one tree to another it missed its footing by alighting on a rotten branch, which gave way, and it fell amongst the hounds. This was a fine adult male Marten. Although arboreal in its habits generally, it is somewhat curious that the specimen just obtained was caught by its fore-foot in a gin set in a stone quarry; and I think another was caught in a similar way not many years ago at Northam Burrows, a sandy plain in the North of Devon. As to there being two species of Marten, the colour of the breast is no criterion of specific value, for specimens have been killed in the same wood which exhibited on the breast intermediate shades of colour from pure white to primrose-yellow. (See St. John's 'Wild Sports in the Highlands,' p. 107.) The fur in the yellow-throated Pine Marten is said to be far superior in texture and quality to that of the Common Beech Marten; but this may arise from the fur becoming coarser as the animal advances in age. It seems to be a generally entertained idea that the white-breasted Marten betokens age, and that the yellow tone is a sign of adolescence. In the

Grey Plover and Wood Sandpiper the young birds have their dorsal plumage very often spotted with yellow, which becomes white in adult birds.—E. H. Rodd (Penzance).

Marten-cat in Wastdale, Cumberland.—A curious fact in connection with Marten-cats has lately come under my notice. During a hunt in Wastdale (the wildest part of the Cumberland hills), an old "Mart," as this species is locally termed, was observed to rush up the face of a precipice with a young one about a quarter grown hanging on firmly to her tail. I think that no one will be sorry to hear that on this occasion both mother and young one escaped.—W. A. Durnford (Barrow-in-Furness).

Rat seizing a Snake.—A friend of mine was walking on the highroad, in the autumn of last year, accompanied by a sheep dog which is a good ratter, when he saw at some distance what he supposed to be a rat jumping and tumbling about in a peculiar manner. He "hied" on the dog, which to his surprise kept jumping around and barking, instead of seizing it as he expected. On a nearer approach, however, he discovered that the rat had fastened, about midway, on a large snake, the snake using its utmost endeavours to get to the hedge, and the rat doing all it could to keep it on the road. This state of things went on for some time, neither rat nor snake taking any heed of him or his dog, until at last, thinking that the snake would make its escape, he struck at and killed them both.—H. Nicholls (Kingsbridge, South Devon).

Orange Variety of the Mole.—On March 11th an orange-coloured variety of the Mole was caught on this farm, in the parish of Waldron, near Hailsham, by a mole-catcher. He brought it to me, and I have sent it to Messrs. Pratt, of Brighton, to be preserved. A similar variety was caught on this farm about two years ago. The man also tells me he has taken several lately with orange spots, but threw them away. I am told that an orange-coloured Mole is frequently caught on an adjoining farm. My father says that on his farm in Northamptonshire a white Mole was caught some years ago.—E. Langley (Horeham Manor, Hawkhurst).

[See 'Zoologist,' 1877, pp. 225, 226.—Ed.]

Common Dolphin at Plymouth.—On February 20th a fine Dolphin, *Delphinus delphis*,—measuring 5 feet 6 inches in length, 3 feet 4 inches in girth, and weighing 2 cwt. 2 qrs. 27 lbs.,—was captured in a net off Plymouth. The beak, or snout, of this animal was most curiously maimed or malformed, a portion of the tip of the upper jaw being abruptly bent or doubled inwards, and its whole length turned somewhat aside as if from a tremendous blow. Thus shortened, the projecting end of the lower jaw has curved upwards in the form of a hook, giving the whole snout a remarkable appearance, which, together with its numerous small teeth, strongly reminds one of the serrated and hooked bill of the Smew—of course, reversed or turned upside down. There was a kind of angular notch on the back, near the tail, as if a large piece had been at some time bitten out, but now quite healed and covered with skin similar to other parts of the body. This malformation of the mouth does not seem to have interfered with the animal's feeding, as it was in particularly good condition. A cast of the head has been taken and the skull preserved by Mr. Hearder, of Plymouth.—JOHN GATCOMBE (Durnford Street, Stonehouse, Plymouth).

THE REVIVAL OF FALCONRY.—I have read with much interest Captain Dugmore's article on "The Revival of Falconry," which appeared in your last number. May I say a word or two thereon? In the first place, I thank him for his kind and considerate mention of myself. It is not always that falconers remember my early struggles in the cause, and I should be sorry to think that my name had quite died out among them. I have been compelled to give up the sport, both this year and last, but have hardly yet lost my interest in it. For seventeen or eighteen years I flew grouse on a small moor in this manor, with a success to which my many friends will bear witness. In all that time but one year was missed. But changes come with years; and the present tenant of this extensive shooting (the acting, rather than the nominal, tenant, for there are two partners) has contrived to shut out me and mine from every, even the most trifling, privilege which he found us enjoying. He is a town man, of course; not a country man. Had it not been for this I should have seen last year, and probably for the last time, a falcon or two of my own training fly grouse. Were I a vindictive man I should glory in the certain knowledge that this person has not the smallest chance of preserving game upon the manor—not if he covered it with keepers. Well, sir, you see that my little existence as a working falconer is over. Let me turn for a moment to others. Captain Dugmore says that he knows no one in England, save Mr. Hancock, who can stuff a hawk properly. I am more fortunate. I know—and have known for thirty years—an amateur, even I think superior to Mr. Hancock in this matter,—my dear friend William Brodrick, the life and spirit of that excellent book, of which he is more than half author, "Falconry in the British Isles." And in speaking of old falconers Mr. Brodrick should never be forgotten: I can only say for myself that I am altogether indebted to him for the rudiments of the art, and that without his early kindness I should probably never have been able to write a word on Falconry, or to fly a single grouse. With regard to the Club itself, many well-known falconers object to it, on the ground that flying hawks in the Alexandra Park is a burlesque on the oldest and most romantic of our sports. I confess I do not agree with them; but I object to certain portions of my own essay on the matter, written several years ago. What I am prepared to say now is,—and my opinion on such a point is, perhaps, hardly of much importance,—that so long as the birds are only put on the wing to the lure, and exhibited at rest (surrounded by all the tackle, means, and appliances of Falconry), no burlesque need be dreaded; but a most interesting and instructive lesson is offered to those who care to learn the first principles of the sport, with the view possibly of some day taking it up in earnest.—PEREGRINE.

CORRECTION OF ERROR.—In Capt. Dugmore's article in the last number of 'The Zoologist,' several typographical errors occurred, for which he is not responsible. In the hope that some at least may have escaped detection, we refrain from pointing them out, and take the blame for their occurrence entirely on ourselves.—ED.

NATURAL HISTORY NOTES FROM POOLE.—The past year, so far as I have been able to observe, was not distinguished for many events interesting in an ornithological point of view. The mildness of the winter was, I suppose, the reason of the particularly poor show of wild fowl with which we were favoured last year. A similar mildness this year has produced a similar result. The winter of 1876–77 was noteworthy for the numbers of Great Northern Divers and Grebes (chiefly the Sclavonian Grebe) which frequented the mouth of the harbour. This year, 1877–78, there have been scarcely any. In the spring, also, the various migratory waders, such as Godwits and Grey Plovers, were unusually scarce—a great contrast to the previous year, when the Godwits in their red dress, an unusual sight on our mud-flats, were very plentiful. A fine Crested Grebe was seen in the harbour at the end of April, in perfect adult plumage. I also observed a very nice-looking Garganey, or Summer Teal. I believe a brood or two are usually hatched off in this neighbourhood. In May I came across a breeding-place of the Ringed Plover, situated on a gravel spit. I found twenty eggs here in about an hour. A pair of Oystercatchers, from their actions, had evidently a nest here as well, but I did not find it. There are two breeding-places, at least, of the Black-headed Gull in the vicinity of the harbour—one at Littlesea, between the harbour and Studland Bay; the other in a heath-pond made for ducks by Mr. Calcraft, of Kempstone. As the season advanced, numerous family parties of ducks came down to the mud-flats, and with them a good show of Teal, which assembled in considerable numbers by the 1st August; but, after having been shot at for a day or two, they departed to the numerous ponds, such as those at Crichel, Morden Park, Littlesea, &c., where they are strictly preserved; and as there has been no hard weather to drive them out, we have not seen them since. In September, a few waders, such as Redshanks, Knots, Godwits, Curlew Sandpipers, &c., made their appearance, but only in small numbers. I killed a dozen Knots and six Curlew Sandpipers at one shot.

Early in the month, a brother of mine obtained a Spotted Redshank at the point where the Frome enters the estuary, a bird which I never happened to meet with here before, although no doubt it occurs here annually. Curlews and Sheldrakes breed in some numbers round the harbour, and will no doubt gradually increase in consequence of the protection afforded to them. The Sheldrakes leave us about September, and we see no more of them until the first hard weather before Christmas, which, if severe, brings in a good many, some of these stopping and bringing up their young. I only saw one Grey Phalarope last season, on the 16th October, in South Deeps, at the mouth of the harbour. On the 17th I saw the first Northern Diver, at the Half-way Diver buoy, not far from Poole, and I shot it with my punt-gun. It was, however, an immature bird, weighing nine pounds. On the 1st November I saw a beautiful adult bird of this species in Studland Bay, but failed to obtain it. On 12th November, a man employed on the bridge where the railway spans the estuary between Wareham and Poole, caught a specimen of the Fork-tailed Petrel alive, the day after the very severe gale. On the 20th of the same month a Swallow was flying backwards and forwards, on the south front of our house, nearly the whole day. On the 21st February, a family of young Song Thrushes left the nest in which they were hatched, in a small thicket close to the house. An unusual number of sprats in Poole Bay, about the beginning of January, brought a large number of Kittiwakes, Guillemots, Razorbills and Red-throated Divers, and an unusual show of Gannets. These fine birds do not plunge for the sprats as for larger fish, but skim along the top of the water, and occasionally get so gorged as to be unable to get on the wing. I have noticed them in this state, particularly at the slack of the tide. A few Oystercatchers arrived the first week in March to have a look at their breeding-places. There have been none about the mud-flats since October. The Black-headed Gulls were assuming their spring plumage for a month previously, and Snipes occasionally drumming for a still longer period. About the beginning of April a pair or two of Sandwich Terns nearly always make their appearance, and in August a lot of young ones are to be seen about, the buoys at the harbour-mouth being a favourite place of theirs. They may possibly breed here, but I have never had any proof of it.—T. M. PIKE (Westport, Wareham).

ORNITHOLOGICAL NOTES FROM DEVON.—An Iceland Gull was killed in Plymouth Sound on December 1st. The plumage was nearly white, with very faint markings of brown; indeed so faint that I should think at the next moult the back would have assumed the light bluish gray of the adult state. On the 3rd I saw two Black Redstarts on the coast, and watched a Northern Diver having a long struggle with an eel, which it had some difficulty in mastering. I also observed a flock of about a dozen Purple

Sandpipers on the rocks at the Devil's Point, Stonehouse; so many are not often seen together on this part of the coast. Kittiwakes are now plentiful; and a friend who has just returned from America tells me that Kittiwakes were constantly following in the wake of the ship, the whole way from New York to within about a hundred miles of the coast of Ireland, when their place was taken by Black-backed Gulls, both young and old. He also informed me that the common Sparrow is now as plentiful in New York as in any part of England, and that he was much surprised to see so many varieties among them, a large proportion being more or less marked with white. Can this be owing to change of climate? Whilst on the subject of varieties I may here mention that a Chaffinch having a pure white tail has lately been seen near Plymouth; a Bullfinch has been caught, with the top of its head white; and a few days since I examined a pretty pied Blackbird, strange to say the largest bird of its species I ever saw. During January, considering the general mildness of the weather, a tolerable number of Wigeon and Teal were exposed for sale in our market, together with an adult female Goosander, a young Goldeneye, and a few Pochards. Occasionally I heard flocks of Wigeon flying up the River Tamar after dark. A little Grebe was brought to a local bird-stuffer, with its breast still clouded with dusky as in the breeding season, but without any traces of chestnut on the cheeks; its stomach contained nothing but the remains of shrimps. On February 1st I examined a common Guillemot, which had already assumed its full breeding dress; and on the 10th observed *Larus ridibundus*, showing apparently the full dark head; and by the 19th several more in various states of change. On this date I first heard the spring cry of the Herring Gull, and was much interested in watching thirteen Herons in the middle of a ploughed field among flocks of Lapwings and Golden Plovers. About one half the Herons were at rest, but the others cautiously stalking about the field, with partially contracted necks, which were often darted forward, apparently to strike at earthworms, grubs, and insects. On the 20th February a Bartailed Godwit was killed near Plymouth—a very uncommon species with us at this season, but tolerably numerous in the autumn and sometimes during spring. Chaffinches are now in full song, and I have remarked Pied Wagtails in perfect breeding dress. A gentleman shooting on Dartmoor, not long since, killed a Snipe, but before he could pick it up, a falcon, or hawk of some species, dashed down and carried it off. Instances of this kind, I have heard, are not very uncommon; indeed, when shooting from a boat, I have known Dunlins carried off from the water, by the larger Gulls, in a similar manner.—John Gatcombe.

Birds striking the Lanterns of Lighthouses.—With regard to Mr. E. T. Booth's remarks (p. 100) on the "Migration of Birds in the

Autumn," there is no doubt that much fewer birds now strike the lanterns than was formerly the case. This is probably not due to any actual decrease in the number of migrants, but to the present modern system of lighting. A very intelligent lighthouse principal lately explained to me exactly how this happened. Formerly, he said, when birds approached the lantern they were dazzled and confused by the glare of many lamps, backed by the highly-polished mass of reflectors. Now, however, the rays from the large central lamp are collected by the lenses and deflected in a line parallel to the horizon: the consequence is that when birds approach the light they are not to the same extent dazed by the glare, but have sufficient time to discern the obstacle opposing them, and swerve either to the right or left. With reference to the editorial note appended to my own communication (p. 103), after looking through all the authorities for the specific and generic names of the Longtailed Duck, from Fleming (1822) downwards, and finding nobody to back me up, I admit that I was in error when I wrote *Harelda* as a specific name for that species.—JOHN CORDEAUX (Great Cotes, Ulceby).

SINGULAR IMMIGRATION OF JAYS INTO OXFORDSHIRE.—Having often had occasion to go into Oxfordshire, during the last few years, I have had good opportunities for observing most of the local birds, and I now wish to chronicle a wonderful increase of Jays in that county during the last six months. Up to October last it was a very rare sight to meet with them in the open country, and even in the woods they were far from plentiful. On March 16th, last year, I noticed three frequenting a large gorse covert; these, I think, had been driven there from a neighbouring wood by the hounds. I am told two examples only were seen in the summer months, and so only one nest could have been brought off in the vicinity. But on October 18th, last year, I saw several Jays; and on the 18th I observed two coming directly overhead, to the north, at an immense height. These, however, as far as I am aware, did not settle in the neighbourhood. By the 22nd they were exceedingly plentiful; and I am informed they were there in equal numbers all through the winter. A few days ago I had the pleasure of seeing certainly twelve Jays, about twenty Magpies, and a Sparrowhawk, in the course of a short walk. I shall be interested to hear whether they stop to breed.—C. MATTHEW PRIOR (Bedford).

THE HABITS OF THE MERLIN.—During the winter months, immature birds of this species are frequently met with in the south, though the true home of this dashing little hawk is evidently in the land of the heather and mist. They are said to be very destructive to game, and as such usually pay the penalty that the possession of a bad name incurs. Whether it is that my own experience with regard to this bird has been too limited to form a correct judgment, I am unable to say; but I hardly think that they are the desperate characters that they are generally described. Those which I have seen in the south were usually in pursuit of small birds, and while seeking this sort of prey they are frequently captured in the clap-nets that abound near Brighton. On the grouse moors in the north, I have examined the remains of the victims that they have consumed near their nests, and never found anything larger than a Dunlin, which bird, with larks, pipits, and large moths (principally of the Eggar species), seemed to make up their bill of fare. Though frequenting most of the wild, rocky glens in the Highlands, they seem to have a partiality for the more open moors, being particularly numerous in the flat parts of Sutherland and Caithness. The nest is generally placed amongst the heather on the ground in the open moor. In one case, however, I took the eggs from the face of a rock overhanging a hill loch in Ross-shire. The female was shot, but, being a good deal injured, was not retained; while the male, falling winged among large stones, managed to make good his escape into some hole before I could reach the spot. While searching for him, I stumbled on one of the best concealed whiskey-stills I ever met with. It will certainly be a particularly 'cute exciseman that discovers its whereabouts without the help of previous information.—E. T. Booth (Dyke Road, Brighton).

Pomatorhine Skua and Puffin in Berkshire.—In a bird-stuffer's shop in Newbury, I lately saw the remains of a Pomatorhine Skua in nearly full plumage. This bird was killed in a wood near Newbury, by a farmer, on or about October 25th last, and was brought to its present possessor to make into a fan; and as now mounted wants the plumage of the back and both legs. The centre feathers of the tail were shot away, which accounts for its capture having attracted so little attention, it being mistaken for a Black-backed Gull; though judging from the colour of its wings, tail, and head, its back must have been of a dark brown colour. It proved on dissection to be a male, and was in very poor condition. In the same shop was a Puffin, which, on December 21st last, was seen by a man, named Harris, to rise from a ditch, near Newbury, and was knocked down with a whip.—H. M. Wallis (Dorset Villa, Reading).

Grey Phalarope in Hants.—I have to record the occurrence of two specimens of this pretty little species. One on October 15th, shot upon a pond in the New Forest, which it had frequented for some days previously; and the man who shot it said he could not but admire the graceful deportment of this elegant bird as it moved about upon the water, almost like a miniature Swan. It is a pity his admiration had not prompted a better feeling than killing the interesting little creature. The other specimen was killed, November 17th, somewhere upon the River Avon.—G. B. Corbin (Ringwood, Hants).

PUGNACITY OF THE MOORHEN.—Moorhens are very pugnacious birds, and are always fighting amongst themselves; but I was perfectly surprised a few days ago, when going to pick up a wounded one, to see it come at me "open-mouthed," and repeatedly fly up and peck my legs.—C. MATTHEW PRIOR (Bedford).

HARLEQUIN DUCK AT FILEY.—During my stay at Scarborough, I purchased of Mr. Roberts, the well-known naturalist, a Harlequin Duck which he told me was shot at Filey about ten years ago. I mention this occurrence, as this duck has been killed on so few occasions in this country, and I have never seen this specimen mentioned in any book on Natural History.—J. WHITAKER (Rainworth Lodge, Mansfield, Notts).

[The recorded instances of the occurrence of this duck in a wild state in this country are mostly doubtful. In several cases subsequent examination showed that the birds in question were young Long-tailed Ducks, and in one instance a so-called Harlequin Duck proved to be a female Scaup. See Professor Newton's remarks on this subject in 'The Ibis' for 1859, p. 162.—ED.]

GREY CROW IN YORKSHIRE IN SUMMER.—When staying at Scarborough last summer, I went to see the sea-fowl breeding at Flamborough Head, and when standing on the cliff a Grey Crow flew past. This was on the 15th June, at which date I was much surprised to see a Grey Crow so far south.—J. WHITAKER.

MANX SHEARWATER IN OXFORDSHIRE.—It may be as well to put on record the occurrence of a bird of the above species, at Chipping Norton, in the winter of 1872—73. Two other examples are said to have been caught there (see Morris's 'British Birds'). It was brought to Banbury to be stuffed, and is now in my possession.—C. MATTHEW PRIOR (Bedford).

HYBERNATION OF THE SLOW-WORM.—On March 2nd a man in removing part of a hedge-bank found four young Slow-worms of two different sizes all coiled up together into a ball. They were in the earth in the centre of the bank, about a foot from the surface. The man noticed no leaves or grass, or any kind of nest, nor any hole communicating with the surface, though there probably was a small passage. Three of these reptiles were alike in size,—three and one-eighth inches long by one-eighth of an inch in diameter. The fourth was about six and a quarter inches long, and about a quarter of an inch thick. No full-grown Slow-worm was found.—FRANK NORGATE (Sparham, Norwich).

Scyllarus arctus off Penzance.—*Scyllarus arctus* has again been taken in this bay by a trawler, and brought to me alive. There can be no doubt that this very rare British crustacean is fairly common in our western seas. I now have received some dozen or more specimens,—some alive, some dead, and one in berry; and several have been taken off Plymouth. This particular specimen fell to my lot through the kindness of Miss Tyacke, our well-known conchologist.—T. Cornish (Penzance).

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

Linnean Society of London.

February 21, 1878.—W. Carruthers, Esq., F.R.S., Vice-President, in the chair.

The following gentlemen were ballotted for and duly elected Fellows of the Society:—Dr. Hance, of China; Mr. Edward Milner, 32, New Cavendish Street, W.; Dr. George Shearer, 57, Upper Parliament Street, Liverpool; and the Rev. Robert Boog Watson, B.A., 3, Bruntsfield Place Edinburgh.

Among exhibitions of specimens and remarks thereon were—examples of *Spongilla Carteri*, by Mr. E. Lockwood; a remarkable oak gall of *Aphilothrix Sieboldii* (Hart.), obtained at Willesboro' Leas, Ashford, by Mr. E. M. Holmes, of the Pharmaceutical Society; and several other botanical rarities.

The only zoological paper read was "On the Butterflies in the Collection of the British Museum hitherto referred to the Genus *Euplœa* of Fabricius,' by Mr. A. G. Butler. The author states that in his monograph in the 'Proceedings of the Zoological Society' (1866), he himself had split up the genus in question somewhat arbitrarily, overlooking the fact that several natural genera existed. He now further criticises Mr. Scudder's paper "On the Generic Names proposed for Butterflies." He observes that Mr. Scudder in his revision frequently supersedes a name long in use by the resuscitation of a partial synonym. For example, *Euplœa* is discarded in favour of a name applied to two only of its species. This Mr. Butler deprecates, on the ground that it is not a help, but a hindrance, to the advancement of Science; as also the fact that Mr. Scudder ignores the rule of the British Association respecting the uses of the terminations *idæ* and *inæ* for families and subfamilies. Mr. Butler, in emendation of his own former work, proposes, to adopt the genus *Salpina* and *Trepsichoris* of Hübner, to fix the limits of his genus *Calliplœa*, and to add a genus for the reception of all those species the males of which have *two* brands upon the interno-median area of primaries. For this latter group he coins the name *Stictoplœa*. These brands in the *Stictoplœa* he conceives are for purposes of strigillation. Then follows a list containing the species under each genus of the series contained in the British Museum Cabinets, with notes of elucidation.

March 7, 1878.—Dr. GWYN JEFFREYS, Vice-President, in the chair.

Mr. Charles C. P. Hobkirk, of Huddersfield, was ballotted for, and elected a Fellow of the Society.

Prof. Ray Lankester exhibited and made remarks on a valuable series of fossil Walrus tusks (*Trichecodon Huxleyi*) from the Suffolk Crag, sent to him for examination by Mr. J. E. Taylor, of the Ipswich Museum.

Mr. Rich exhibited some examples of a new variety of *Helix virgata*. forwarded to him from Ireland.

The first zoological paper read was "On some New Species of Nudibranchiate Mollusca from the Eastern Seas," by Dr. Cuthbert Collingwood. The author remarked that zoologists and voyagers who pay but brief visits to the tropical coasts are less likely to obtain new or interesting forms of the Nudibranchiates than are residents searching carefully within limited areas. Thus he accounts for Sir W. Elliot's Madras, and Kelaart's Ceylon, gatherings surpassing expeditions fully equipped for collection. The gay colouring of the group is equally found on our own shores, less climatically favoured, as on those of the tropics. Seasonal and other influences probably have much to do with abundance or scarcity of species, even in a given locality, where previously known to exist. Dr. Collingwood noticed some curious instances in which specimens isolated in a dish of sea-water spontaneously, and very neatly, amputate the region of their own mouths. He then described the following sixteen new species, and exhibited coloured drawings from Nature, showing the animals in the expanded and contracted conditions:—(1) *Doris pecten*, (2) *D. crescentica*, (3) *Chromodoris iris*, (4) *C. Bullockii*, (5) *C. aureo-purpurea*, (6) *C. tumulifera*, (7) *C. tenuis*, (8) *C. funerea*, (9) *C. Alderi*, (10) *Albania formosa*, (11) *Triopa principis-Walliæ*, (12) *Trevelyana felis*, (13) *Doridopsis arborescens*, (14) *Phyllidis spectabilis*, (15) *Freyeria variabilis*, (16) *Bornella marmorata*.

In the absence of the author, Dr. Patrick Manson, Dr. Cobbold communicated a paper "On the development of *Filaria sanguis-hominis*, and on the Mosquito considered as a Nurse." He pointed out that development cannot progress far in the host containing the parent worm; that the embryo must escape from the original host; and that in the case in question the mosquito is found to be the nurse. The latter term, "nurse," he employed instead of the more accepted signification of helmenthologists, "intermediate host." He then gave some account of the mosquito after feeding on human blood. The female mosquitos, having gorged themselves, repair near stagnant water, and remain semi-torpid for a few days, digesting the blood and voiding gamboge-coloured fœces. They deposit their eggs, which float in sooty flakes, on the surface of the water. Soon these are hatched, and the larvæ become the familiar "jumpers" of stagnant pools. The produce of *Filaria*, he believed, is thus taken into the human system with the drinking water. Dr. Manson's method of procuring mosquitos containing embryo *Filariæ* was to get a Chinaman, whose blood was previously ascertained to abound with *Filariæ*, to sleep in a mosquito house. In the morning the gorged mosquitos were caught, and duly examined under the microscope. He thus ascertained that the blood ingested by the mosquito from a man suffering from *Filaria* contains a larger proportion of *Filariæ* than an equal quantity of blood obtained by pricking the finger of the same man. On one slide of the latter he counted under the microscope some twenty or thirty, in the former upwards of one hundred and twenty. He remarked that all embryos do not attain maturity; and dilated on the metamorphosis of the embryo, giving drawings of the different stages as observed by himself. He concluded by remarking that the *Filaria*, escaping into the water as the mosquito dies, is through the fluid-medium conveyed to man. Within him it pierces the tissues of the alimentary canal. Development and fecundation proceed apace; and finally the embryo *Filariæ*, met with in the blood, are discharged in successive swarms and in countless numbers—the genetic cycle being thus completed.

Dr. Cobbold then read a paper of his own entitled "The Life-history of *Filaria Bancrofti*, as explained by the discourses of Wucherer, Lewis, Bancroft, Manson, Sonsino, and others." This was a critical paper intended to elucidate the literary history of the discoveries of various observers, which have at length led up to a tolerably complete knowledge of the essential facts concerning this remarkable parasite. According to Dr. Cobbold, the *Filaria Bancrofti* is the sexually mature state of certain microscopic worms, obtainable either directly or indirectly from the human blood. It gives rise to more or less well marked diseases of warm climates, and a certain stage of the growth and metamorphosis of the worm takes place through the medium of blood-sucking insects. Dr. Cobbold concluded by offering some suggestions as to the best means of checking the ravages of these parasitic plagues; adding a notice of the various authors who have written on the subject.—J. Murie.

Zoological Society of London.

March 5, 1878.—Professor Newton, M.A., F.R.S., Vice-President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of February, and called special attention to a pair of Persian Leopards, deposited by Captain Phillips on the 18th ult.

Mr. Sclater exhibited and made remarks on a second collection of birds from Duke of York Island, New Britain and New Ireland, which he had received from the Rev. George Brown.

Mr. Sclater exhibited and made remarks upon a specimen of *Athene variegatæ* and upon the type specimen of *Fulica gallinuloides* of King, belonging to the Museum of Science and Art, Edinburgh.

Professor Newton drew attention to the statement of Leguat that every Solitaire (*Pezophaps solitaria*) carried a stone in its gizzard, and exhibited one of three stones found by Mr. Caldwell associated with the remains of as many birds of that species in the caves of Rodriguez.

Mr. T. J. Parker described the stridulating apparatus of *Palinurus vulgaris* which consisted in a peculiar modification of the second joint of the antennæ working against the lateral surface of the antennulary sternum.

A communication was read from Mr. C. Spence Bate, containing an account of the Crustaceans of the coast of Coromandel, collected by Sir Walter Elliot, K.C.S.I.

Mr. A. Boucard read notes on some *Coleoptera* of the genus *Plusiotis*, and gave descriptions of three new species from Mexico and Central America.

A communication was read from Mr. Arthur G. Butler, containing an account of a small collection of *Lepidoptera*, obtained by the Rev. J. S. Whitmee, at the Ellice Islands.

A communication was read from Mr. Edward J. Miers, on the *Penæidæ* in the collection of the British Museum.

Mr. George French Angas read a description of a new genus of land shells belonging to the family *Cyclophoridæ*, for which he proposed the name of *Mascaria*.

Mr. Angas also read descriptions of nine new species of land and marine shells from various localities, amongst which was a new *Rostellaria*, proposed to be named *R. luteostoma*, and a new *Bulimus* from Madagascar, proposed to be called *B. Watersi*.

A communication was read from Dr. G. E. Dobson, containing additional notes on the *Chiroptera* of Duke of York Island and the adjacent parts of New Ireland and New Britain.

A communication was read from Mr. Robert Collett, containing an account of *Latrunculus* and *Crystallogobius*, two remarkable forms of Gobioid Fishes found in Scandinavia.

March 19, 1878.—Arthur Grote, Esq., Vice-President, in the chair.

The Secretary exhibited the type specimen of *Dicrurus marginatus* of Blyth, and pointed out its identity with *Muscipipra vetula* (Fam. *Tyrannidæ*).

Mr. J. W. Clark exhibited and made remarks on some stuffed specimens of the Sea-lion (*Otaria ursina*) of the Prybylov Islands, which had been presented to the Museum of the University of Cambridge by the Alaska Commercial Company.

A communication was read from the Marquis of Tweeddale, containing the sixth of his contributions to the Ornithology of the Philippines. The present memoir gave an account of the collections made by Mr. A. H. Everett in the Island of Leyte.

Mr. P. L. Sclater read a report on the collection of birds made during the voyage of H.M.S. 'Challenger,' in the Sandwich Islands, and pointed out the characters of a new species of duck, of which it contained specimens, and which he proposed to call *Anas Wyvilliana*..

A communication was read from Mr. W. A. Forbes, containing notes on a small collection of birds from the Samoan Islands and the Island of Rotumah, Central Pacific.

A communication was read from Mr. F. Nicholson, containing a list of the birds collected by Mr. E. C. Buxton, at Darra Salam, on the coast of Zanzibar.

Messrs. F. Du Cane Godman and Osbert Salvin gave descriptions of new species of Central American butterflies of the family *Erycinidæ*.

Prof. A. H. Garrod read some notes on the visceral anatomy of *Lycaon pictus* and *Nyctereutes procyonides*.

A communication was read from Mr. Andrew Anderson, containing the description of a new Indian *Prinia*, obtained in the Bagesur Valley, North-Western Himalayahs, which he proposed to name *Prinia poliocephala*.—P. L. Sclater, *Secretary*.

Entomological Society of London.

February 6, 1878.—H. W. Bates, F.L.S., F.Z.S., President, in the chair.

The President nominated Prof. J. O. Westwood, Mr. J. W. Douglas and Mr. Frederick Smith as Vice-Presidents.

Donations to the Library were announced, and thanks voted to the donors.

Mr. Richard S. Standen, of Holmwood Lodge, Surbiton, and Mr. T. W. Wonfor, of 38, Buckingham Place, Brighton, were ballotted for and elected Members.

Mr. Jenner Weir exhibited three specimens of an *Atypus* taken on a bank near Lewes; they were stated to erect a pile of small pieces of chalk in front of their burrows. Mr. Weir also exhibited a remarkable spider from Madagascar, and a small living spider (*Philodromus*), marked and coloured in imitation of lichen, which he had beaten out of trees in the New Forest.

Sir Sidney Saunders stated that the *Atypus* was *A. Sulzeri*, Koch.

Mr. M'Lachlan exhibited a small collection of dragon-flies of the genus *Euthore*, in illustration of a paper entitled "*Calopterygina* collected by Mr. Buckley in Ecuador and Bolivia." The collection contained a fine series of both sexes of a new species, *Euthore mirabilis*.

Mr. Meldola exhibited a remarkable specimen of *Leucania conigera* taken at Willesden. The colour and markings of the fore wings were reproduced on the lower half of the left hind wing.

Mr. Meldola then read some extracts from a letter from Dr. Fritz Müller to Mr. Charles Darwin, dated from Santa Caterina, Brazil, 27th November, 1877.

The Secretary called the attention of the members to the approaching International Entomological Exhibition to be held at the Royal Westminster Aquarium in March. He also exhibited, on behalf of Capt. Elwes (who was present as a visitor), a series of coloured illustrations of butterflies, printed from nature by a new process invented by Dr. Sériziat, of Collioure (Pyrénées Orientales), France. The inventor states that the "colouring matter is fixed by means of a special adhesive and a press; the bodies are painted in water-colours after nature."

Mr. G. C. Champion exhibited twelve species of the genus *Cetonia*, taken by Mr. J. J. Walker, of H.M.S. 'Swiftsure,' at Besika Bay, Salonica, Piræus, and other Mediterranean localities. He also exhibited a specimen of *Anthicus bimaculatus*, a rare British beetle, taken near New Brighton by Mr. J. T. Harris, of Burton-on-Trent.

Mr. J. W. May exhibited a specimen of *Carabus intricatus* taken at Fulham.

Mr. H. Goss called attention to the occurrence of sexual dimorphism in *Erebia Medea*, and exhibited specimens of both forms of the female. He stated that he had obtained specimens of both forms nearly every year for the last sixteen years from Silverdale, Lancashire, and that one form was quite as common as the other. The principal difference between the two forms consisted in the colouring of the discal band. In one form, which Mr. Goss believed to be the typical form, the discal band was bluish ash-colour, and in the second or diverging form it was ochreous-brown, or in some specimens whitish ochreous.

Sir John Lubbock read a paper "On the Colouring of British Caterpillars." Starting from the principles laid down by Darwin, Wallace, and others, that dull-coloured, green, and smooth-skinned caterpillars are eaten by birds, &c., while spiny, hairy, and brightly-coloured species are rejected, the author proceeded to show by a statistical method of tabulation that no hairy caterpillars are green, while, on the other hand, a large majority of black and brightly-coloured caterpillars are hairy.

Mr. Jenner Weir expressed his warm approval of the method by which Sir John Lubbock had treated the subject, and remarked that the results obtained forcibly illustrated the antagonism between green coloration and hairy protection. He further stated that during the past summer he had seen the larvæ of *Euchelia Jacobeæ* in great profusion on *Senecio*, which plant had been completely stripped of its leaves over a large area of the New Forest. The great abundance of this caterpillar he regarded as a natural experiment on a large scale illustrating the truth of the doctrine advocated.

Mr. J. W. Douglas asked whether the bright colours of the caterpillars actually frightened away birds. He remarked that it was well known that the Shrikes impaled brightly-coloured and hairy insects, such as bees.

Sir John Lubbock replied that the bright coloration or hairy covering of a caterpillar acted simply as a warning that the species was inedible. It was clearly an advantage to a distasteful species to be recognized as such before being pecked at by a bird, and not after being seized, in which case the larva, although perhaps not killed at the time, would in all probability ultimately die of the wounds inflicted. Thus by the action of Natural Selection had bright colours and hairs become associated with distasteful qualities.

Mr. M'Lachlan stated that in 1865 (Trans. Ent. Soc., ser. 3, vol. ii.) he had called attention to the fact that some flower-frequenting caterpillars were of the same colours as the flowers on which they fed. He remarked that this was especially the case with the genus *Eupithecia*. Mr. M'Lachlan also called attention to the fact that the larvæ of many *Sphingidæ*, such as *Acherontia Atropos* were known to present two distinct forms or coloured varieties.

Mr. Butler remarked that he could fully endorse Sir John Lubbock's view of the function of the oblique stripes on the sides of *Sphinx* larvæ—that these markings were intended to represent the shadow-lines cast by leaves. He mentioned that he had recently had an opportunity of observing *Sphinx ligustri* under conditions most favourable to this deception. Mr. Butler further remarked that many of the exotic larvæ belonging to the genera *Sphinx* and *Smerinthus* were dimorphic. With reference to colour being influenced by food-plant, he stated that he had observed this fact in connection with species of *Mamestra*.

Sir John Lubbock stated, with regard to dimorphic larvæ, that Weismann had shown that in such cases one form generally retained the characters of the young larva, while the other form diverged from it at a certain stage of growth. The dark-coloured varieties generally existed in those species which fed on low-growing plants, under which conditions the dark colour served as a protection to the caterpillar when hiding by day.

Mr. H. Goss said that he had long been familiar with two forms of the larva of *Chœrocampa elpenor*, and that the green and brown varieties were about equally common, the former colour not being in any way confined to young larvæ.

Mr. J. P. Mansel Weale remarked that in South Africa the ordinary form of larva of *Acherontia Atropos* feeds generally upon *Solanaceæ*, while the dark form, which is rarer, he had found only on species of *Lantana*. The larva of *Chœrocampa capensis* feeds on the wild vine, and is green, shaded with oblique stripes of pale violet; it has two eye-like spots on the thoracic segment, but they are very small, and would in this case hardly be serviceable to the insect in frightening away birds; the general coloration of the caterpillar is probably protective. Another *Chœrocampa* larva feeding on the wild vine is dark-coloured, but with very large eye-like spots, which give it a grotesque appearance. Mrs. M. E. Barber, in a paper read before the Linnean Society, mentioned the larva of a species of *Chœrocampa* which feeds on *Convolvulaceæ*, and which in its younger stage is green, but becomes dark coloured prior to burrowing, at which period it may be seen wandering about the ground. The species is extremely abundant. The larva of *Antheræa Tyrrhea* is so abundant in some seasons that the thorn-trees (*Acacia horrida*) are stripped of their foliage over miles of area. The caterpillar is conspicuously marked with black, white and yellow; when touched it jerks its head backwards and ejects a quantity of a nauseous green fluid. Mr. Weale stated that he had never seen it attacked by birds, although it is often infested with ichneumons. The moth—to judge by the number of wounded specimens—is attacked largely by some night-flying animal, probably bats. Many of the larvæ of *Sphingidæ* when seized have a habit of doubling up the body and then jumping a considerable distance with a spring-like action. This is especially the case with species having eye-like markings, and it is probable that if attacked by birds in a hesitating manner, such species might effect their escape amid the grass or foliage.

Mr. Meldola stated that, in the December number of 'Kosmos,' Fritz Müller had recorded a number of most interesting observations bearing upon the subject of the coloration of caterpillars.

The following papers were communicated by Mr. C. O. Waterhouse:—"Description of a new Dragon-fly (*Gynacantha*) from Borneo." "Description of a new Species of *Chernitidæ* (*Pseudoscorpionidæ*) from Spain." "On the different forms occurring in the Coleopterous Family *Lycidæ*, with Descriptions of new Genera and Species."

Part IV. of the 'Transactions' for 1877 was on the table.

March 6, 1878.—H. W. Bates, F.L.S., F.Z.S., President, in the chair.

Donations to the Library were announced, and thanks voted to the donors.

Mr. John Woodgate, of Richmond Road, New Barnet, Herts, was ballotted for and elected a Member.

Mr. F. Moore exhibited, at the request of Sir W. H. Gregory, late Governor of Ceylon, a large series of beautifully executed drawings, by native artists, of the transformations of the Lepidoptera of that island. These drawings were made under the supervision of Dr. Thwaites, and represent the life-history of many species hitherto unknown. Mr. Moore expressed a hope that the Government of Ceylon would accede to the proposition of having them published.

Mr. M'Lachlan exhibited four parts—relating to Entomology—of the great Russian work, Fedtschenko's 'Travels in Turkestan;' they consisted of two parts on *Hymenoptera*, &c., one on *Coleoptera*, and one on *Arachnida*.

The President called attention to the excellence of some of the plates, drawn, engraved, and coloured in Russia.

Mr. H. Goss exhibited a small collection of fossil insects obtained by Mr. J. S. Gardner, F.G.S., from the Bournemouth Leaf-beds (Middle Eocene). The collection comprised numerous elytra of *Coleoptera*, chiefly *Curculionidæ* and *Buprestidæ*, also wings of an *Æschna* and other *Neuroptera*, &c.

Mr. J. P. Mansel Weale read some "Notes on South African Insects."

Mr. Edward Saunders contributed a paper entitled "Remarks on the Hairs of our British *Hymenoptera*."

Mr. A. G. Butler read a paper "On the Natural Affinities of the Lepidopterous Family *Ægeriidæ*," in which he showed that the structural characters of these insects presented no resemblance to the *Sphingidæ*, with which they had hitherto been allied; but that they were more related, on the one hand, to the *Pyrales*, and on the other to the *Gelechiidæ*.

Mr. Peter Cameron communicated a paper "On some new Genera and Species of *Tenthredinidæ*."

The Secretary read a paper by Mr. A. H. Swinton entitled "The Biology of *Insecta*, as determined by the Emotions." The author has collected a large number of observations showing the various means by which insects express fear, love, rivalry, &c. The present paper deals chiefly with cases of simple muscular contractions and secretions.—R. Meldola, *Hon. Sec.*

NOTICES OF NEW BOOKS.

Shooting, Yachting and Sea-fishing Trips at Home and on the Continent. By "WILDFOWLER," "SNAPSHOT." 2 vols. 8vo. Chapman and Hall. 1877.

A BOOK on wildfowl-shooting comes to hand opportunely in the month of January,* and if the weather is not sufficiently favourable to hold out much hope of sport, there is some consolation to be found in looking forward to a change for the better, and in reading, over a comfortable fire, the adventures and advice of "Wildfowler."

Those who have already made acquaintance with his two former volumes, which were published a year or more ago, will be prepared for much that appears in these, and the reader who is fond of marsh and coast shooting, with an occasional turn at sea-fishing, will find a good deal to amuse him in these reminiscences of an enthusiastic sportsman.

It may be thought by some that there is rather too much sameness in the account which the author gives of his varied expeditions, and that one good book on the subject (as the "first series" undoubtedly was) is better than two. On the other hand, the author does not go over the same ground, or water, but "changes the venue" both at home and abroad, and many who are as enthusiastic as himself will doubtless be disposed to think that they cannot have too much of a good thing.

Without actually reproducing some of his sketches, for which we regret that we have not space at our disposal, we can scarcely do the author justice; but we may remark that although his heart is evidently in the lonely snipe-marsh, or the saltings and sandhills by the sea (where the variety of birds to be met with at certain seasons, the uncertainty of what will get up next, and the rapid, twisting, snipe-like flight of these denizens of the marsh, combine to render this kind of rough shooting peculiarly attractive), he has by no means neglected the claims which every species of winged and four-footed game possesses in the eyes of sportsmen.

The subject of Grouse-shooting, Partridge-driving, or Snipe-shooting in Ireland, is now somewhat "hackneyed," and there is an unavoidable sameness in most descriptions of the 12th August or the 1st September. But this is made amends for by the account which is furnished of the sport to be obtained in the marshes or at the mouths of tidal rivers, and various shooting excursions in different parts of the Continent.

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* This notice was written in January last, and has stood over ever since for want of space.—ED.

The chapter on catching Foxes in France for the English market (vol. ii., p. 49) will have an interest for those who prefer hunting to shooting, while the concluding chapters in the second volume on sea-fishing will furnish amusement to all lovers of the long-line.

Although the author is a keen sportsman, and evidently a good shot, we infer from his book that he is no naturalist, for we miss the accuracy that would characterise a close observer of Nature in many passages wherein he fails to discriminate the species of birds shot by him, while he makes no note of their peculiarities of habit, call or flight. Some attention to these points we think would have heightened the value of the book in the eyes of many readers.

We should have been glad also to have seen a list of the provincial names of birds, with the localities in which the same are in use, and which "Wildfowler," from his many opportunities, might well have furnished. Visitors to the coast, even naturalists of some experience, are now and then puzzled to identify a bird from its local name without actual examination of a specimen; and a curious collection of such names might be made from the vocabularies of local fishermen and professional gunners. We throw out this hint for the consideration of some of our readers.

Field Paths and Green Lanes: being Country Walks, chiefly in Surrey and Sussex. By LOUIS J. JENNINGS. Illustrated with Sketches by J. W. WHYMPER. London: John Murray. 1877. 293 pp.

THE author of this entertaining work well observes, "To anyone who has eyes, there is much to see in this small but infinitely varied England, so much that, as Emerson says, to see it well 'needs a hundred years.'" He has done, therefore, acceptable service, which will be recognized and acknowledged by many a denizen of the modern Babylon who finds solace and mental refreshment in occasional pedestrian outings, in putting into so graphic and agreeable a shape the results of his own wanderings in the two southern counties of Britain which possess not merely the charms of "field paths and green lanes," in well nigh endless variety, but in addition archæological and ecclesiastical objects as infinite in their interest. True it is, much of the matter to be found in this volume is to be consulted in Murray's Handbooks to Surrey and Sussex, but the special charm of Mr. Jennings' notes lies in the fact that as he "invariably followed a green lane or a field-path, wherever one could be found," he has endeavoured to furnish directions enabling others to follow it also; "for," as he justly adds, "very seldom is it marked upon the maps."

Like Walter White, in his analogous 'Walks,' our author appears to have found additional pleasure in making friends with the country people and tramps with whom he came in contact; his chat with such wayfarers imparts much liveliness to his pages, and he even urges that advantage attends the unaccompanied tourist, on the ground that "by proper management you may get the country folks whom you meet to talk to you, and from them pick up many a quaint saying or odd scrap of information." On this point opinions may differ, but at least in Mr. Jennings' case the result has been to impart to the reader many curious provincial colloquialisms.

Of matter more immediately calculated to claim the attention of 'The Zoologist' there is not much to notice. Observant of his surroundings as Mr. Jennings undoubtedly is, and having at all times a keen eye for Nature's beauties as exemplified in wild scenery, or for man's handiwork as developed in quaint buildings, he nevertheless records but few facts connected with Natural History. At Etchingham (p. 45) an old man, telling the author of the origin of a rookery in that village, thus delivered himself:—"They Rooks as you see on bärson's pläce only coom a few year agoo. About fi' year back, ten or a dozen coom, and the next year about värty, and now you see as there be a hundreds of 'em. Queer birds, they be—sometimes coom all of a sudden, and then go away again same way."

Again (p. 97):—

"In the one street of Bramber I noticed a signboard pointing 'To the Museum.' What sort of a Museum could it be? It turned out to be a very curious place indeed, prepared and fitted up by one man, whose name is James Potter, a self-trained naturalist. Numerous animals, birds, and insects, all caught and stuffed by Potter himself, and made up into striking or grotesque groups, were round the room. There is a 'kittens' croquet party,' a 'squirrels' carouse,' a cricket match played by guinea-pigs, and other scenes, wonderfully life-like, and all sweet and clean and pleasant to look upon, which is quite a new feature in connection with stuffed animals. 'I suppose,' said I, 'many of these creatures are only made up?' 'Oh, no, sir,' said Potter, 'they are all real. I was obliged to have them alive, or I could not have given them the *expression*.' There were some capital Herons and Kingfishers, caught close by."

A large sand-bank about two miles from Dorking, just below the hill leading from Westgate, will be found "full of Martins' nests—many colonies of Martins may be seen in this part of the country, but this is one of the largest and most conveniently placed for purposes of observation" (p. 158).

Although Mr. Jennings has limited his expeditions chiefly to the two home counties included in the title of his book, he has nevertheless favoured his readers with notes of peregrinations in the adjacent county of Kent and down the Wye from Ross to Chepstow. It is in Surrey and Sussex, however, that the author's strength will principally be found to lie, and of what character are the scenery and general aspect of a region the nearest, and in the main most accessible from, the densely populated metropolis is best told in his own words:—

"The road throughout this walk leads on through woodland and common, by paths bordered with fir trees, or passing over hills beneath which a great part of the Wealds of Surrey and Sussex lie extended before the traveller. By far the larger proportion of the land through which he must pass is uncultivated. Considering the small size of the county of Surrey, the extent of it which lies a mere wilderness in these busy days is simply amazing. The whole county is but twenty-seven miles in length, and not more than forty in breadth, yet it contains almost every variety of scenery, scarcely one mile is like another, and often the whole character of the country undergoes an utter change within the space of half-a-dozen miles. Where, out of Scotland, can be found such moors and heaths as those between Thursley and Hindhead, or even between Albury and Ewhurst? Many of the commons or downs are familiar to excursionists, but the heaths in the more distant and neglected parts of the county are little visited.

The cottagers to be met with here and there will tell you that they scarcely ever see a stranger from one year's end to another." (P. 248.)

The work is illustrated with some woodcuts from capital sketches by Mr. J. W. Whymper, deserving of more than a mere passing notice. We cordially commend Mr. Jennings' pleasant book to all lovers of Nature, and in this would include those who from physical infirmity or lack of suitable opportunity are debarred from using their eyes, ears and legs as he has done, with so much profit to himself and advantage to his readers.

Notes of Observations of Injurious Insects. Report, 1877. 8vo, 19 pp. London: T. P. Newman. 1878.

In the early part of last year we received a small seven-page pamphlet entitled 'Notes for Observations of Injurious Insects.' In the prefatory remarks assistance was asked from both agriculturists and entomologists in order to obtain information on a few selected species generally injurious to farm or garden crops. The instructions given were as follows:—

> "The points chiefly to be noted are the *presence of surroundings,* such as plants, or shelter, suitable for the food or protection of the noxious insects; *agricultural conditions,* such as the drainage, the nature of the soil, and manures, and that of the preceding crop on the ground, its degree of cleanness and that of the neighbouring fields, and also the *state of the weather.*
>
> "The observations on the insects under the head of "general remarks" should give the *date* of their appearance as larvæ; *numbers,* comparatively, to previous years; and also date, and quantity of appearance, and date of disappearance in the perfect state, with *amount of injury* to crop."

These observations were to be returned on a ruled form which came with the pamphlet.

On receiving this, we must confess, we looked it over and thought that although the object aimed at was undoubtedly a good one, it would probably meet with little attention, not only from lack of interest and lack of willing observers, but also from the fact that the majority of farmers and gardeners are almost entirely unacquainted with Entomology. Our misgivings, however, proved ill founded. We have just received the first Report, which extends to nineteen pages, and clearly shows that the venture has by no means been unsuccessful. Miss E. A. Ormerod, the author, herself tells us "the request has been responded to far more cordially than could have been expected."

It is said that Economic Entomology is to a certain extent a useless work in this country, from the immunity we enjoy from the attacks of noxious or hurtful insects. Certainly in this respect we are not afflicted to the same extent as many other countries. We have not the "hoppers" or "tater-bugs" of our American friends, nor is a great industry threatened, as is vine culture to our continental neighbours through the ravages of the *Phylloxera*. But we know from experience and hearsay that great damage is wrought to many of our products by the effect of insect "blights." The removal or abatement of these losses seems to be the aim of these 'Notes,' and we can only wish that, as the work seems to have been so well taken up by competent observers in such varied localities, it may eventually lead to good results. To show its practical bearings, we cannot do better than quote the Report itself, the second paragraph of which runs as follows:—

> "Whether much or little, those who will give the benefit of their knowledge in diminishing the great yearly loss from insect waste are doing good service to the country; and this first year's return shows how much may be gained by continuing the observations for the time which would be requisite to form fairly complete notes of treatment found successful generally, with the modifications required by each year's peculiar weather, or by soils and climates varying as widely as the range from Banff to South Devon."

The details of the Report need not be specified here further than to say that information has been received respecting fifteen of the sixteen insects specially recommended to be observed. The species unobserved is the Corn Sawfly (*Cephus pygmæus*). Of those mentioned the first eight are the most important, *viz.*:—The Turnip Fly (which, by the bye, seems to be a little beetle), Onion Fly, Carrot Fly, Cabbage Moth, Cabbage Butterfly, Wireworm, Celery or Parsnip Fly, and Turnip Sawfly. The remaining eight appear to be a somewhat miscellaneous collection, but in it are contained two notable species—(1) the Wheat Midge or Red Maggot (*Cecidomyia tritici*), that very destructive little gnat which occurs in the wheat-ear just as the kernel is forming, and has to answer for the destruction of a large quantity of the "staff of life;" (2) the Clouded Yellow Butterfly (*Colias Edusa*), which we were originally surprised to see included, and wondered why it should be introduced. Probably the author had some prophetic prescience, as its appearance everywhere in unprecedented numbers has been the great entomological feature of the year.

Twelve of these specially noted insects are fully illustrated by clearly-drawn figures. After these notes there are a few general remarks on the Asparagus Beetle—for the destruction of which a successful treatment is given—and two or three other insects, with instructions as to the form of procedure, closing with an apology, which certainly seems unnecessary. It is signed "E. A. Ormerod, Dunster Lodge, near Isleworth, London."

We understand that this pamphlet is issued gratuitously, and may be obtained from Mr. Newman, 32, Botolph Lane, London; its object, therefore, is the more commendable, as few persons can have any difficulty in recording their observations when such facility and information is so freely afforded them.

The Scottish Naturalist: a Quarterly Magazine of Natural History. Edited by F. Buchanan White, M.D., F.L.S. Edinburgh and London: Blackwood & Sons.

We are glad to observe, by the appearance of the twenty-ninth number of this periodical, that the study of Natural History north of the Tweed continues to flourish. Seven years ago the members of the Perthshire Society of Natural Science inaugurated this journal as a medium for the publication of their Transactions, but owing to the favour with which it was received by naturalists in other parts of the country, it soon ceased to be the representative journal of one Society only, and has now, we are glad to see, a considerably extended circulation.

The current number commences with a pleasantly written article by the Editor on "Glen Tilt: its Fauna and Flora," followed by a continuation of Sir Thomas Moncrieffe's account of the *Lepidoptera* of Moncrieffe Hill. Dr. Stirton continues a paper "On certain Lichens belonging to the Genus *Parmelia*," and Dr. Lauder Lindsay has an article "On the Gold-Fields and

Gold-Diggings of Crawford-Lindsay," in which he embodies the results of his own enquiries concerning the modern history of gold-finding in the Crawford-Lindsay hill district, which extends into Dumfriesshire, though the most important part of it, with its former capital and castle, is in Lanarkshire. Professor Traill's communication on "Scottish Galls," dealing as it does with the attacks of insects on plants, possesses as much interest for the zoologist as for the botanist.

We see by an "Occasional Note" that Mr. J. A. Harvie Brown, of Dunipace House, Larbert, N.B., is engaged in collecting statistics on the increase and spread of the Capercaillie in Scotland since its restoration at Taymouth in 1836, and that anyone who is interested in the subject and willing to impart any information may receive, on application to Mr. Harvie Brown, a printed form showing in a series of questions the points upon which he specially desires information. Perhaps some of our readers may be able to assist him.

The Midland Naturalist: the Journal of the Associated Natural History, Philosophical and Archæological Societies and Field Clubs of the Midland Counties. Edited by E. W. BADGER and W. J. HARRISON, F.G.S. London: Hardwicke & Bogue. Birmingham: Cornish Brothers.

WE have received the first three numbers of a new journal bearing the above title, and which is intended to become the medium for publishing the Transactions of some sixteen or seventeen different Natural History Societies in the Midland Counties. The step is no doubt a judicious one, and will extend the usefulness of local Societies by affording facilities for inter-communication through an authorized and regularly published Magazine, which shall record the work done by each Society, announce forthcoming meetings, assist the exchange of specimens, and by providing opportunities for personal intercourse amongst the members at meetings to be held from time to time in various places of interest, promote and encourage the study of Natural History. We wish the new journal all success.